

ABSTRACT

5 The invention provides a method of diagnosing myocardial failure in a human. The method comprises: obtaining a sample of myocardial tissue from a ventricle of the heart of the human; quantitating the expression of α -myosin heavy chain (α -MHC), β -myosin heavy chain (β -MHC), or both in the sample; and determining by statistical analysis if the expression of α -MHC, β -MHC, or both in the sample is significantly different than their expression in normal human ventricular myocardial tissue.

10 The invention also provides a kit for diagnosing myocardial failure in a human. The kit comprises a container holding at least one nucleic acid molecule that hybridizes to DNA or RNA coding for α -MHC, β -MHC or both.

15 The invention further provides a method of treating myocardial failure in a human. The method comprises administering an effective amount of an agent that directly causes an increase in the quantity of α -MHC in the myocardial tissue of the heart.

20 Finally, the invention provides a method of quantitating the expression of a first protein relative to the expression of a second protein or to the total expression of the first and second proteins. The method comprises obtaining a sample of cells or tissue expressing the first protein and the second protein, extracting RNA from the cells or tissue, preparing cDNA from the RNA, amplifying the cDNA coding for the first and second proteins by polymerase chain reaction using primers that hybridize to cDNA coding for the first protein, the second protein or both, and quantitating the amplified PCR products.